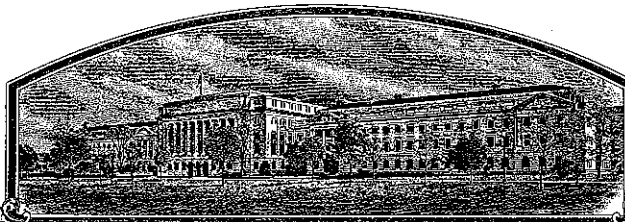


No.

200400026



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Dr. Peter Franck

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR PROPAGATING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'POLARIS'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this sixteenth day of March, in the year two thousand and five.

Attest:


Commissioner
Plant Variety Protection Office
Agricultural Marketing Service


Secretary of Agriculture



VERMONT LUGALL, INHABER FÜRSTENBERG STRASSE 100 10110 BERLIN 10

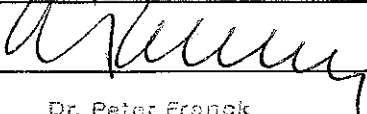
FORM ADVISORY - UMS NO. 550-1-1000

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER DR. PETER FRANCK		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME ACS 99658		3. VARIETY NAME POLARIS	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) ACS-P20 PFLANZENZUCHT OBERLIMPURG, DR. FRANCK OBERLIMPURG D 74523 SCHWAEBISCH HALL GERMANY		5. TELEPHONE (include area code) +49-791-931180		FOR OFFICIAL USE ONLY PVPO NUMBER 200400026	
		6. FAX (include area code) +49-791-47333		FILING DATE 11/14/2003	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.)		8. IF INCORPORATED, GIVE STATE OF INCORPORATION		9. DATE OF INCORPORATION	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) SEED-LINK INC. P.O. BOX 217 LINDSAY, ONTARIO K9V 5Z4 CANADA				FILING AND EXAMINATION FEES: \$ 3652.00 DATE 11/14/2003 CERTIFICATION FEE: \$ 432.00 DATE 11/19/05	
11. TELEPHONE (include area code) (705) 325-0544		12. FAX (include area code) (705) 324-2550		13. E-MAIL sloffice@seed-link.ca	
14. CROP KIND (Common Name) SPRING WHEAT		16. FAMILY NAME (Botanical) POACEAE		18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP Triticum aestivum		17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(e) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (If "no", go to item 23)	
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED 22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)		24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)		25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF OWNER 		SIGNATURE OF OWNER			
NAME (Please print or type) DR. PETER FRANCK		NAME (Please print or type) Dr. Peter Franck			
CAPACITY OR TITLE BREEDER		DATE September 22, 2003		CAPACITY OR TITLE DATE	

(See reverse for instructions and information collection burden statement)

200400026

צוותא : תרבות : תנועה : תחבורה

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (201) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvp.htm>

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 <http://www.ams.usda.gov/lsg/seed.htm>.

ITEM

- 19a. Give:
 - (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
 - (2) the details of subsequent stages of selection and multiplication;
 - (3) evidence of uniformity and stability; and
 - (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
 - (1) identify these varieties and state all differences objectively;
 - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
 - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (*See Regulations and Rules of Practice, Section 97.103*).
23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*
24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

~~First sale/transfer to USA.~~

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5984 (voice and TDD). USDA is an equal opportunity provider and employer.

ACS - PZO

EXHIBIT A BREEDING HISTORY

Name of applicant : Dr. Peter Franck

Experimental Number : **POLARIS** (ACS 99658) **Hard Red Spring Wheat**

POLARIS is a hard red spring wheat bred by ACS - PZO - Pflanzenzucht Oberlimpurg in Germany. The variety is the result of the following crosses and selections:

Pedigree : LONA/4/KENT/B564//SO/3/KENT/2*B564//SAP

LONA = Swiss variety
 KENT = and B564 : canadian origin
 SO = Sokrates , German variety
 SAP = Sappo , German variety

F 1 seed were bulked at harvest 1991 ; the F 2 to F5 generations were grown and selected in Oberlimpurg .

Agronomically acceptable rows were selected ; 40 such rows were multiplied . Testing of agronomic values started in F 7 generation in North America and Europe.

Successive generations were tested in various US-states , mainly in North Dakota and Montana.

Stages of Selection and Multiplication :

From this 40 rows 3 lines were finally selected and bulked.

Breeders seed was planted in 2002 and approximately 100 acres in the spring 2003 for the purpose of producing Foundation seed.

POLARIS will be maintained at Oberlimpurg throughout the duration of Plant Variety Protection , based on 800 single plant progenies sown annually as „ear to row“. Negative selection is based on obvious criteria in all stages from 4-leaf-stage to harvest. Breeders seed production is generated from this material.

Uniformity and Stability Statement

POLARIS has been observed for 4 generations of increase and is stable and uniform .

Variants appear in SATURN at a frequency of about 1 in 8000. These variants have 5-7 cm longer straw but are identical to the variety in all other characteristics as described in Exhibit C. These variants are commercially acceptable ..

Selection criteria : high yields ; Scab tolerance ; lodging resistance , leaf rust resistance

Exhibit B: Statement of Distinctness

Polaris is most similar to Conan. However, Polaris is 6 days later for ear emergence (see statistical analysis Table 1-3). Polaris is 8 cm taller, and the stem of Polaris is hollow, whereas the stems of Conan are solid to semi-solid.

Measurement for spring wheat varieties Polaris (ACS 99658) and Conan

From the varieties Polaris and Conan, 20 plants were examined in two locations and two years and the characters were measured. The datas were calculated with PLABSTAT (Utz, 1989).

Location 1: Langdon, North Dakota, USA

2002: planting 23.4., harvesting 21.8.
2003: planting 27.4., harvesting 23.8.

Location 2: Oberlimpurg, Schwäbisch Hall, Germany

2002: planting 01.04., harvesting 10.08.
2003: planting 15.03., harvesting 15.07.

A test for skewness and curtosis was made to make sure that the datas were normal-distributed. The original datas, mean values and variances for each variety, each year and each location are given in Tab.1, Tab.2 und Tab.3.

An ANOVA survey was made over years and locations to test if the two varieties can be distinguished from each other. In the statistical model varieties, locations and years were regarded as factorial factors. Repetitional measurements within varieties, locations and years were regarded as hierarchical factors. Table 4 gives the F-value for each factor and its significance (** for $\alpha=0.01$, * for $\alpha=0.05$ and + for $\alpha=0.1$).

Tab. 1 Plant height (cm)

variety	character	year	locat.	measurements (cm)										mean	total mean											
				1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
ACS 99658	plant	2002	loc 1	87	88	89		88	91	89	90	91	89	90	90	90	93	90	92	92	91	91	89	90	90,10	
	height		loc 2	99	97	101		103	102	98	100	99	98	101	99	104	103	101	103	100	104	101	101	102	100,80	
	cm	2003	loc 1	90	88	92		89	90	92	91	87	90	91	91	93	89	91	90	91	92	89	87	91	89,10	
Conan	plant		loc 2	102	101	100		100	102	98	100	101	100	104	102	103	102	103	101	101	102	103	99	99	101,15	95,54
		2002	loc 1	83	82	83		80	80	80	83	84	78	84	83	82	79	80	81	80	79	80	78	83	81,10	
	height		loc 2	95	95	90		90	94	91	93	90	92	93	92	96	92	89	94	94	94	92	92	93	92,55	
	cm	2003	loc 1	81	81	81		85	82	79	83	86	79	84	79	82	83	84	83	78	84	83	82	79	81,90	
			loc 2	96	93	95		93	93	95	93	91	94	94	94	95	92	90	92	93	96	95	94	89	93,35	87,23

Tab. 2 ear emergence (from 1st of January)

variety	character	year	locat.	measurements (mm)										mean	total mean							
				1	2	3	4	5	6	7	8	9	10			11	12	13	14	15	16	17
ACS 99658	ear	2002	loc 1	194	193	192	193	193	193	191	192	194	193	194	193	192	194	193	193	193	193	192,95
	emergence		loc 2	168	167	166	168	168	166	167	168	168	169	168	170	168	165	167	168	170	168	167,90
		2003	loc 1	167	167	165	167	168	166	167	168	167	167	167	168	166	167	167	166	167	168	166,95
Conan	ear	2002	loc 2	162	163	164	162	162	163	161	160	162	160	162	161	163	162	161	162	162	162	161,90
	emergence		loc 1	186	186	187	186	185	187	189	187	187	188	187	185	187	188	187	186	187	187	186,80
			loc 2	160	162	161	162	161	162	163	164	160	162	162	165	162	162	162	163	162	162	162,10
		2003	loc 1	161	160	159	161	162	161	161	161	162	161	162	161	160	164	163	161	161	159	161,10
			loc 2	156	153	156	157	159	156	156	158	156	157	154	155	157	156	157	152	156	158	156,05
																						166,51

Tab. 3: Significance of examined characters - ACS 99658 (Polaris)

			plant height			heading date	
	DF	MS	F-value	sign.	MS	F-value	sign.
Varieties (Var)	1	138,195	9024,690	**	69,915	4565,720	**
Locations (Loc)	1	249,203	16273,910	**	447,753	29239,990	**
Var x Loc	1	0,165	10,800	n.s.	0,015	1,000	n.s.
Years (Yrs)	1	0,475	31,040	n.s.	508,008	33174,860	**
Var x Yrs	1	0,195	12,750	n.s.	0,008	0,510	n.s.
Loc x Yrs	1	0,153	1,000	n.s.	196,515	12833,200	**
Var x Loc x Yrs	1	0,153			0,153		

burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Jamie L. Whitten Building, Washington, D.C. 20250. When replying, refer to OMB No. 0581-0055 and form number in your letter. Under the PRA of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S) DR. PETER FRANCK	FOR OFFICIAL USE ONLY PVPO NUMBER 200400026
ADDRESS (Street and No. or RD No., City, State, and Zip Code) ACS - PZO PFLANZENZUCHT OBERLIMPURG DR. FRANCK OBERLIMPURG D 74253 SCHWABISCH HALL GERMANY	VARIETY NAME POLARIS
	TEMPORARY OR EXPERIMENTAL DESIGNATION ACS 99658

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. or) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used. Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

1=Common

2=Durum

3=Club

4=Other (SPECIFY): _____

2. VERNALIZATION:

1=Spring

2=Winter

3=Other (SPECIFY): _____

3. COLEOPTILE ANTHOCYANIN:

1=Absent

2=Present

4. JUVENILE PLANT GROWTH:

1=Prostrate

2=Semi-erect

3=Erect

5. PLANT COLOR (boot stage):

1 = Yellow-Green

2 = Green

3 = Blue-Green

6. FLAG LEAF (boot stage):

1 = Erect

2 = Recurved

1 = Not Twisted

2 = Twisted

max 11/24/2004

7. EAR EMERGENCE:

Number of Days Earlier Than _____ *

Number of Days Later Than CONAN *

8. ANTER COLOR:

200400026

☒ 1

1 = Yellow

2 = Purple

MAH 11/24/2004

9. PLANT HEIGHT (from soil to top of head, excluding awns):

☒ 08cm Taller Than CONAN☐ ☐

cm Shorter Than _____

* Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

10. STEM:

A. ANTHOCYANIN

☒ 1

1 = Absent

2 = Present

B. WAXY BLOOM

☒ 2

1 = Absent

2 = Present

C. HAIRINESS (last internode of rachis)

☒ 1

1 = Absent

2 = Present

D. INTERNODE (SPECIFY NUMBER)

☒ 1

1 = Hollow

2 = Semi-solid

3 = Solid

E. PEDUNCLE

☐

1 = Absent

2 = Present

☒ 23

cm Length (22.5 cm)

☒ 1

1 = Erect

2 = recurved 3 = semi-erect

11. HEAD (at Maturity):

A. DENSITY

☒ 2

1 = Lax

2 = Middense

3 = Dense

B. SHAPE

☒ 2

1 = Tapering

2 = Strap

3 = Clavate 4 = Other (SPECIFY): _____

C. CURVATURE

☒ 2

1 = Erect

2 = Inclined

3 = Recurved

D. AWNEDNESS

☒ 4

1 = Awnless

2 = Apically Awnletted

3 = Awnletted

4 = Awned

12. GLUMES (at Maturity):

A. COLOR

☒ 1

1 = White

2 = Tan

3 = Other (SPECIFY): _____

C. BEAK

☒ 2

1 = Obtuse

2 = Acute

3 = Acuminate

B. SHOULDER

☒ 3

1 = Wanting

2 = Oblique

3 = Rounded

4 = Square

5 = Elevated

6 = Apiculate

D. LENGTH

☒ 3

1 = Short

2 = Medium


(ca. 7mm)

(ca. 8mm)

3 = Long (ca. 9mm)

200400026

E. WIDTH

 1 = Narrow (ca. 3mm) 2 = Medium (ca. 3.5mm)
3 = Wide (ca. 4mm)

Дата 11/24/2004

13. SEED: .

A. SHAPE

2 1 = Ovate 2 = Oval 3 = Elliptical

B. CHEEK

1=Rounded 2=Angular

E. Coler

3 1=White 2=Amber 3=Red
4= OTHER (Specify)

F. TEXTURE

1 **1=Hard** **2=Soft**

C. BRUSH

2 1=Short 2=Medium 3=Long

1 = Not Collared 2 = Collared

D. CREASE

1 = Width 60% or less of Kernel
2 = Width 80% or less of Kernel
3 = Width Nearly as Wide as Kernel

3 1 = Depth 20% or less of Kernel
2 = Depth 35% or less of Kernel
3 = Depth 50% or less of Kernel

G. PHENOL REACTION (see instructions):

4 1 = Ivory 2 = Fawn
3 = Light Brown 4 = Dark Brown
5 = Black

14. DISEASE: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

 Stem Rust (*Puccinia graminis* f. sp. *tritici*)

4 Leaf Rust (*Puccinia recondita* f. sp. *tritici*)

4 Stripe Rust (*Puccinia striiformis*)

3 Loose Smut (*Ustilago tritici*)

3 Tan Spot (*Pyrenophora tritici-repentis*)

3 **Flag Smut (*Urocystis agropyri*)**

Halo Spot (*Selenophoma donacis*)

3 Common Bunt (*Tilletia tritici* or *T. laevis*)

4 *Septoria nodorum* (Glume Blotch)

3 Dwarf Bunt (*Tilletia controversa*)

☐ ***Septoria avenae* (Speckled Leaf Disease)**

Karnal Bunt (*Tilletia indica*)

4 *Septoria tritici* (Speckled Leaf Blotch)

4 Powdery Mildew (*Erysiphe graminis* f. sp. *tritici*)

☒ 4 Scab (*Fusarium* spp.)

"Snow Molds"

200400026

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

- | | |
|---|--|
| <input type="checkbox"/> "Black Point" (Kernel Smudge) | <input checked="" type="checkbox"/> Common Root Rot (<i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.) |
| <input type="checkbox"/> Barley Yellow Dwarf Virus (BYDV) | <input type="checkbox"/> Rhizoctonia Root Rot (<i>Rhizoctonia solani</i>) |
| <input type="checkbox"/> Soilborne Mosaic Virus (SBMV) | <input type="checkbox"/> Black Chaff (<i>Xanthomonas campestris</i> pv. <i>translucens</i>) |
| <input type="checkbox"/> Wheat Yellow (Spindle Streak) Mosaic Virus | <input checked="" type="checkbox"/> Bacterial Leaf Blight (<i>Pseudomonas syringae</i> pv. <i>syringae</i>) |
| <input type="checkbox"/> Wheat Streak Mosaic Virus (WSMV) | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Other (SPECIFY) | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Other (SPECIFY) | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Other (SPECIFY) | <input type="checkbox"/> Other (SPECIFY) |

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

- | | |
|--|--|
| <input type="checkbox"/> Hessian Fly (<i>Mayetiola destructor</i>) | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Stem Sawfly (<i>Cephus</i> spp.) | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Cereal Leaf Beetle (<i>Oulema melanopa</i>) | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Russian Aphid (<i>Diuraphis noxia</i>) | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Greenbug (<i>Schizaphis graminum</i>) | <input type="checkbox"/> Other (SPECIFY) |
| <input type="checkbox"/> Aphids | <input type="checkbox"/> Other (SPECIFY) |

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS

EXHIBIT D MILLING AND BAKING DATA

2002 UNIVERSITY OF MINNESOTA WHEAT QUALITY DATA

Location	Cultivar	TW lb/bu	1000 kwt	Sizing		Kernel Moist (as is)	Wheat Ash 4% m	Wheat Protein 4% m	Kernel Hard NIR	FN (sec)	Total Prod. Flour Ext %	Flour Moist %	Flour Protein 4% m	Flour Ash 0.14	Mixo Abs (%)	Mixo Pat	Mixo Peak (min)	Bake Mix (min)	Bake Abs (%)	Rating Scores			Loaf Vol (cc)	Kernel Traits Score	Baking Traits Score
				lg (%)	sm (%)															DC	CC	CG			
Crookston, MN Morris, MN St. Paul, MN	ACS 99658	54.8	22.8	31	4	8.3	1.94	12.5	54.7	418	61.1	14.0	11.9	0.512	53.2	2	6.50	3.75	55.2	2	1	3	4	196	4.7
	ACS 99658	56.1	26.4	44	9	8.4	2.02	13.9	57.7	310	57.1	13.3	13.1	0.476	56.5	2	6.50	3.75	58.1	3	1	5	5	233	6.1
	ACS 99658	58.6	26.7	41	9	8.7	2.08	14.8	56.1	380	61.0	13.7	14.5	0.481	54.6	2	5.50	3.00	56.6	3	1	3	4	212	6.2
	MEAN	56.5	25.3	39	7	8.5	2.02	13.7	56.2	369	59.7	13.7	13.2	0.490	54.8	2	6.17	3.50	56.6	3	1	4	4	214	5.6
Crookston, MN Morris, MN St. Paul, MN	ALSEN	61.1	29.3	66	3	9.0	1.76	14.9	69.3	472	63.4	13.9	14.6	0.381	60.3	4	6.50	3.25	58.3	3	3	5	5	232	13.5
	ALSEN	59.2	27.7	53	7	9.1	2.02	15.5	69.0	273	57.3	13.6	14.3	0.424	57.9	4	6.50	3.25	61.1	3	3	3	5	233	13.4
	ALSEN	59.4	26.5	56	5	9.2	2.08	16.2	64.2	454	59.8	13.6	14.7	0.459	59.3	4	5.50	3.25	61.3	3	4	3	5	234	13.8
	MEAN	59.9	27.8	58	5	9.1	1.95	15.5	67.5	400	60.2	13.7	14.5	0.421	59.2	4	6.17	3.25	60.2	3	3	4	5	233	13.6
Crookston, MN Lamberton, MN Morris, MN	PARSHALL	62.7	28.5	64	5	10.5	1.69	14.6	68.3	427	65.6	14.0	13.5	0.470	60.3	3	4.50	2.25	56.3	3	4	3	5	232	9.4
	PARSHALL	60.3	27.2	55	5	9.6	1.94	13.1	60.1	389	63.5	13.7	12.2	0.535	56.9	3	6.00	2.75	58.9	3	3	3	4	188	6.9
	PARSHALL	61.0	27.9	64	6	9.9	1.97	15.2	60.1	251	63.0	13.2	13.8	0.435	56.2	3	5.50	3.25	60.2	3	5	5	5	211	8.7
	MEAN	61.4	27.9	61	5	10.0	1.87	14.3	62.8	356	64.0	13.6	13.1	0.480	57.8	3	5.33	2.75	58.5	3	4	4	5	210	8.3

2001 QUALITY DATA - NORTHSTAR GENETICS

Trial	Cultivar	Flour Protein		Falling No.
		%		
Weinlaeder Hankey Rivard	99658	15.4		298
	99658	15.6		330
	99658	14.6		374
	Mean	15.2		334
Weinlaeder Hankey Rivard	ALSEN	16.8		552
	ALSEN	17.5		402
	ALSEN	15.7		392
	Mean	16.7		449
Weinlaeder Hankey Rivard	PARSHALL	15.9		349
	PARSHALL	16.8		414
	PARSHALL	15.4		420
	Mean	16.0		394

REPRODUCE LOCALLY. Include form number and edition date on all reproductions.

FORM APPROVED - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) DR. PETER FRANCK	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER ACS 99658	3. VARIETY NAME POLARIS
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) PFLANZENZUCHT OBERLIMPURG DR. FRANCK OBERLIMPURG D 74253 SCHWABISCH HALL GERMANY	5. TELEPHONE (Include area code) +49-791-931180	6. FAX (Include area code) +49-791-47333
7. PVPO NUMBER 200400026		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.

☒ YES☐ NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.

☐ YES☒ NO

GERMANY

10. Is the applicant the original owner?

☒ YES☐ NOIf no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES☒ NO

If no, give name of country

GERMANY

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES☒ NO

If no, give name of country

GERMANY

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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